

# United States Patent [19]

Penz

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- [54] **METHOD OF USING A LIQUID CRYSTAL DISPLAY DEVICE AS A DATA INPUT DEVICE**
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- [51] Int. Cl.<sup>3</sup> ..... G02F 1/13; G06K 15/18
- [52] U.S. Cl. .... 340/712; 340/365 C; 340/765; 340/784; 350/334
- [58] Field of Search ..... 340/365 C, 712; 350/334

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## [57] ABSTRACT

A liquid crystal display (LCD) device may be used as a

device for receiving data from a human operator, that is, an LCD device may be used as a keyboard for receiving data from a human operator. The LCD device preferably has a rear substrate, a transparent front plate, a plurality of segments formed on the substrate and on the plate, liquid crystal material disposed between the cover and the substrate and the plate, and means for sealing the liquid crystal material between the substrate and the plate. The front plate material, which may be glass, plastic or other transparent materials, has sufficient flexibility to deflect toward the substrate in response to the application of pressure by the human operator. The application of pressure occurs, for instance, when the human operator depresses selected areas of the LCD device in much the same manner as when a human operator applies pressure to a keyboard to input information. Selected segments of the LCD device are preferably actuated to define one or more areas on the device where the operator may input information and the segments disposed in the regions of the one or more areas are sensed for a change in capacitance between the segments disposed on the substrate and the segments disposed on the front plate, the change in capacitance occurring when the operator applies pressure to the plate and deflects it toward the substrate.

13 Claims, 8 Drawing Figures

